



A Member of the SARL



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- * Historian—Richard ZS6TF

Newsletter

118

Dec 2015

Reflections:

So the silly season is upon us once again.

I call it the silly season, because to me it is a time when people let down their guard, let down their hair and often drop their pants in public.

I have been to many office parties, social parties and just parties where it seems that this is the right time to do all the silly things that one has not had time to do during the year.

Then there are the non-party goers who don't need an excuse to do silly things at this time of the year.

Many they are and many the things that are done.

I would imagine that most, and I use this word lightly, Radio Amateurs are well behaved sensible people who always manage to keep it together no matter what

situation they find themselves in.

Let me take a few examples:

One would never consider testing 700v DC on a boat anchor with a digital meter.

One would never try lifting an AR88 on your own.

One would never try adjusting voltage in a boat anchor with a normal screwdriver while holding on to the chassis.

One would never try plugging 220v into a 110v radio.

One would never try plugging 220v into a 12v radio.

These are but a few of things we would never do as Radio Amateurs. I am sure that if you let your mind wander a bit there would be many more examples one could think of.

I am sure that at this time

of the year when one looks back on the year gone by and all the things we have done, some may have regrets, but mostly we will be happy with the way things have progressed.

May your New Year be full of moments you will enjoy. Full of experiences you will find fascinating. Full of happy moments to cover the sad ones. Filled with peace to cover the chaos. Filled with health to beat the illness. Filled with good times to beat the bad times. For sure, at one time or another we will experience them all.

A joyous festive season to you all and see you in 2016.

From all of us to all of you.

Best 73

DE Andy ZS6ADY

WIKIPEDIA

Wireless Telegraphy

During his visit to the Paris Exposition Universelle in 1889 the Serbian-American engineer Nikola Tesla learned of Hertz's experiments with electromagnetic waves using coils and spark gaps and proceeded to duplicate those experiments. Tesla came to the conclusion that Maxwell and Hertz were wrong in their findings that airborne electromagnetic waves (radio waves) were being transmitted and instead attributed it to what he called "electrostatic thrusts",^[41] with the real signals being conducted by Earth currents.

By 1891 he had developed various alternator apparatus that produced 15,000 cycles per second and developed his own very large air gaped coil, known now as a Tesla coil. Tesla's primary interest in wireless phenomenon was as a power distribution system. By 1892 he was delivering lectures on high potential/high frequency alternate currents^[46] and went on to demonstrate "wireless lighting" in 1893 including lighting Geissler tubes wirelessly. Tesla proposed this wireless technology could not only deliver power but could also be used for the telecommunication of information. In 1894, Thomas Commerford Martin published "The Inventions, Researches and Writings of Nikola Tesla", detailing the work of Tesla in the previous years. Tesla (like many scientists of that time thought, even if radio waves existed, they would probably only travel in straight lines making them useless for long range transmission.

His laboratory work and later large scale experiments at Colorado Springs led him to the conclusion that a world wide wireless system would have to use the Earth itself (via injecting very large amounts of electric current into the ground) as the means to conduct the signal to overcome this limitation. He proceed to develop an earth-conductive (wireless) system similar to the ground conduction systems proposed earlier which he thought could achieve his goal of wireless power transmission as well as communication. By 1900 Tesla had received financial backing of banker J. P. Morgan and other investors to try to implement his promised ideas of world wide wireless telecommunication in his very large Wardenclyffe Tower wireless transmission project. The project ran into many problems including Guglielmo Marconi starting regular transatlantic transmission in 1903 with far less expensive equipment. Financial backing dried up and Tesla had abandoned the project by 1906.

HF Happenings:

WRC-15 Concludes In Geneva

World Radiocommunication Conference 2015 (WRC-15) concluded its deliberations on 27 November in Geneva, as heads of delegations signed the Final Acts revising the Radio Regulations - the international treaty governing the use of radio frequency spectrum and satellite orbits. Some 3 300 participants, representing 162 out of the International Telecommunication Union's (ITU) 193 member states, attended the 4-week conference. Another 500 or so participants, representing 130 other entities, including industry, also attended as observers. Festus Daudu of Nigeria chaired WRC-15.

"A great deal has been achieved in the last 4 weeks and the results will have a major impact on the future of the telecommunication sector in general and radio communications in particular," ITU Radio-communication Bureau (ITU-R) Director François Rancy said in a closing news release. WRC-15 addressed more than 40 topics related to frequency allocation and sharing.

The conference reached consensus on a new worldwide secondary Amateur Radio allocation at 5 351.5 to 5 366.5 kHz, with a power limit of 15 W effective isotropic radiated power (EIRP). Some Region 2 countries will be permitted up to 25 W EIRP. With this action and despite conditions that are more restrictive than had been hoped at the start of the Conference - the Amateur Service has obtained its first new global HF allocation since 1979. The 15 kHz band at 60 meters "will maintain stable communications over various distances, especially for use when providing communications in disaster situations and for relief operations," an ITU news release said. The new band will not become available for use until the regulatory authorities address the WRC-15 Final Acts.

Threats by the mobile tele-phone/broadband industry near 10 GHz and 24 GHz have been averted for the time being, but are expected to be raised again at WRC-19 and/or WRC-23. The 144 and 420 MHz bands were excluded from the WRC-19 agenda item addressing short-duration (3 years) small satellites.

Agenda Item 1.12, addressing the Earth Exploration Satellite Service (10 GHz EESS), was approved at plenary with foot-notes relevant to certain Middle East countries. The EESS allocation was tailored to avoid the Amateur-Satellite segment and poses no threat to terrestrial amateur radio use of the band.

The International Amateur Radio Union (IARU) team at WRC-15 also focused its efforts on tweaking the agenda for WRC-19. Agenda Item 1.1 will consider 50 to 54 MHz harmonization in Region 1. A proposed agenda item to align the 160 metre allocation in Region 1 with the rest of the world did not make the cut.

North Korea, P5

Shortly before Christmas, Dom 3Z9DX arrives in North Korea for high-level talks with officials and inspectors with re-gards his upcoming P5 activity, which, all go-ing well, will take place January or

February 2016. Dom is taking all radio equipment with him on this visit (as it needs to stay there until the activity and will not be returning home with him). He will be staying for 3 to 5 days. It is not expected that Dom will operate this time, but rather discuss with the various departments about his future activity.

December

- 15 to 19 – KZN Christmas Market Festival, Hillcrest
- 16 – Day of Reconciliation; Shongweni Farmers Market, Durban
- 17 and 18 - Christmas Market, Mossel Bay
- 22 - Summer Solstice; Feast of Tevet
- 24 – Christmas Eve
- 25 - Christmas Day
- 26 – Family Day
- 27 – Groote Post Country Market, Darling
- 31 - Old Years Eve; end of 2015 CQ Marathon; end of Youth on the Air (YOTA) Month
- 31 – Destroy your copy of the 2015 SARL Blue Book

January 2016

- 1 – Download your copy of the 2016 SARL Blue Book
- 1 – New Years day; start of the 2016 CQ Marathon
- 9 and 10 – Hunting Lions in the Air
- 13 – All schools open
- 15 to 17 –PEARS VHF/UHF Contest
- 23 – Summer QRP Contest
- 23 and 24 - UK/EI DX CW Contest
- 28 to 31 – Up the Creek Music Festival, Swellendam
- 31– Groote Post Country Market, Darling

VKOEK DXpedition News

(Heard Island Expedition Newsletter Vol. 1 No 7)

The current Heard Island Expedition Newsletter (Vol 1 No 7, dated 28 November) is now out. Individuals may have already received this because they subscribed to it or they made a donation to the expedition or they are a team member or a corporate sponsor, or Bob, KK6EK, just happens to know you and think you would like to have it. This issue goes to 1 369 different people.

Bob also informs [edited], "There is no charge or obligation for this we just want to help you make a QSO with VKOEK, or to collaborate in the scientific work. Future Newsletters will be issued now and then, when we have something to say, probably every few weeks. If you missed a previous Newsletter and would like to have a copy, you can find a link on page 4 www.heardisland.org/HD_pages/HD_newsletter_back_issues.html to download the back issue.

The expedition is scheduled to begin in early March 2016 and end in late April. You can see the status of the project on the main website www.heardisland.org and on the blogsite www.vk0ek.org.

I hope you like this Newsletter and find it useful. If you have suggestions, comments, subjects you would like to see ad-dressed, etc., or wish to be removed from the distribution list, please write to me...

Bob, KK6EK, Organiser/Expedition Leader"

For more details on the mailing list for the newsletter, go to

www.heardisland.org/HD_pages/HD_newsletter.php

African DX

Mali, TZ. Christian, F4WBN, and Rene, F5DUX, will be active as TZ9A from Mali between 7 and 19 December. Activity will be on the HF bands with a focus on RTTY. QSL via F4WBN direct only.

A four-wheel-drive trip from one continent to the next - ON to C5. "Not the ordinary DXpedition, but a unique merging of amateur radio and charity". The following is an edited press release from Pedro, ON7WP, "Pedro ON7WP will be driving a Nissan Patrol Jeep, a donation to serve as local utility vehicle in Buntung, from Belgium to The Gambia with amateur radio on board. He will leave Brussels on early morning 12 December, first crossing Germany and France to take a ferry to Ceuta where he will sign as EA9/ON7WP. He has applied for licenses for all countries on his way to the Gambia, starting from Morocco as CN9WP, later operating as SOWP from Western Sahara and 5TOWP from Mauritania and maybe also from Senegal if they read their mail...

Mobile equipment will be a Codan SRX2012 with Codan 9350 antenna and a Kenwood TS-480 for 6 metre operations. In the evenings at campsites he will deploy a Butternut Vertical. Frequencies will be centred around 7 145, 14 200, 18 150, 21 300, 24 950, 28 500 and 50 150 non-split while mobile as the Codan rig does not really allow smooth split operation.

Arriving finally at the end of December, Pedro, ON7WP, will be active from his second home "Kerr Pedro" in Buntung, The Gambia, using his other call sign C5WP. Kerr means "house of" in local Pular language. Pedro is actively involved in a private charity organization www.SmileGambia.org that supports a small Village called "Buntung" inland central Gambia. It is a remote town with no water or electricity. During the past years, Pedro and his family installed a water well, solar power, grinders for the pearl millet crop, a fuel powered kilowatt generator, a few laptops on solar power, a small school and some guest houses to accept other philanthropists.

Last year he installed a Spiderbeam antenna that greatly improved his signal. Due to an almost non-existent noise level, he can hear all the weak ones and this year he is going to do some extra efforts for the lower bands, not easy on the savannah grounds. Plenty of space to put antennas but no towers apart from the palm trees and serious restrictions on any hardware that all has to be flown in by plane. Since August, he has a vertically polarized delta loop for 40 metre that gave outstanding worldwide coverage from just the barefoot solar powered TS-480 Kenwood rig.

Active from around Christmas onwards, he will focus on WARC band operation but also try some 6 metre traffic. Plans exist to put up apart from the delta loop for 40 metres, a Butternut vertical for 40 and 80 metres. After a week of solar powered operations, he will move to the coastal area where he will focus on low bands, having possibilities for seaside traveling wave antennas that proved to be good last year. End of the operations will be 9 January.

Another period of operations is planned later this year when Pedro will be driving a Nissan Patrol Jeep, to serve as local utility vehicle in Buntung, from Belgium to The Gambia with amateur radio on board. There are currently only two permanent licenses issued in the Gambia, being C5WP and C5YK. C5YK will depart for

good beginning 2016, so Pedro will be the only one left at the time being.

As charity work comes on the first place, Pedro's operations will be limited to his free time. QSL will be only direct to his home address in Belgium and the 3 Euro asked for will be awarded with a full colour QSL card showing the Buntu Village guest houses. Payment can be included with the card, but alternatively also paid online using Paypal using the "donate" button on the www.SmileGambia.org website. The small profit goes entirely into the charity project.

Amateurs interested in operating from the Buntu village facilities are invited to contact Pedro at c5wp@smilegambia.org for details. Last year they had a visit of MD Dirk, ON5OF, who did some outstanding work dealing with the health of the population. Most people never went to see a doctor in their whole life! This road trip Pedro gets company from Kurt Adams, a solar power specialist who will improve the little power plant in Buntung with fresh panels. The trailer with help goods he helped build uses solar panels as fences and roof.

If you dreamed of operating from a remote African location and you are ready to bring some donations for the people or improve their life by your expertise, whatever it may be, this might be an experience of a lifetime.

History this Month

- 1577 - Francis Drake departed from Plymouth, England, in the Golden Hind on his voyage around the world
- 1642 - Dutch navigator Abel Tasman of the Dutch East India Company discovered New Zealand
- 1896 - Swedish chemist Alfred Nobel died at San Remo, Italy
- 1901 - The first transatlantic radio signal was transmitted by Guglielmo Marconi from Cornwall, England, to St. John's, Newfoundland (11 Dec)
- 1925 - Fred Hitler's book 'Mein Kampf' is published in Germany
- 1936 - King Edward VIII abdicated the throne of England to marry "the woman I love,"
- 1941 - The USA and Britain declare war on Japan after the Japanese attack on Pearl Harbour
- 1991 - The USSR (Union of Soviet Socialist Republics) ceased to exist, as the leaders of Russia, Byelorussia and the Ukraine signed an agreement creating the Commonwealth of Independent States. The remaining republics of the former USSR, with the exception of Georgia, joined the new Commonwealth.

2941 (SR) Gandalf and Bilbo travel with Beorn along the border of Mirkwood

Thanks to Dennis Green and HF Happenings:

If you would like to receive a full copy of HF Happenings, then send Dennis an email :

zs4bs@netactive.co.za

Letter from The SARL President

CQ de ZS6SF

Every year amateur radio uses a theme as the public relations focal point in World Amateur Radio Day activities. This theme is decided by the International Amateur Radio Union. Use of this theme is, however, not limited to International Amateur Radio Day, but is used by amateur organisations throughout the year, to draw attention to amateur radio and its valuable contributions to society in general.



This is important because spectrum space is a valuable commodity that is much in demand and the allocation that amateurs have, is granted to them mostly because of these contributions. To persuade diplomats and officials to make this allocation and defend it against pressure from other would-be users, they have to know about amateur radio's contribution.

The theme selected for 2016 is:

“Celebrating Amateur Radio’s Contribution to Society”.

We, as individual amateurs, can contribute to this public relations exercise by using the theme. Bring it under the attention of as many people as possible; spread the word around. We have many ways of doing this at no cost and every little bit helps. Make it a part of your email signature line for 2016, put it on your club (and private) correspondence, display it at club meetings and at competition stations and even use it in conversations on the air, display it in your own station, make a bumper sticker for your car.

Our hobby is unique in the sense that it needs public re-sources for which we do not pay. We do, however, contribute greatly to society in general. We are not freeloaders, we are proud of that and we want to make it known to all.

73
Fritz Sutherland ZS6SF

New 5 MHz allocation for amateur radio agreed at WRC15

New allocation for amateur radio service in the frequency band 5351.5 - 5366.5 kHz will maintain stable communications over various distances, especially for use when providing communications in disaster situations and for relief operations. The South African Radio League has worked closely with ICASA and carried out propagation studies on two frequencies licensed by ICASA for this purpose.

It is not clear when the new allocation will be made available and replace the two frequencies that ICASA allocated to members of the SARL. The SARL is meeting with ICASA on 29 January 2016 for a workshop to consider various aspects of amateur radio licenses. Access to the 5 MHz band will be one of the agenda items. The current license has been extended till 16 January 2016.

Nominations for Council

This is a call for nomination for council. The following councilors retire after a two year period on the SARL Council. They are: Fritz Sutherland ZS6SF, Geoff Levey ZS6C Hans van de Groenendaal ZS6AKV. Riaan Greeff ZS4PR. They have indicated that they are available for nomination for a further two year period.

The requirements are a nomination form, signed by 10 seconders who are all members of the SARL or by a club of which has at least 10 members who are also members of the SARL. Please refer to the Constitution - which is available on www.sarl.org.za - for more information.

This is also a call for motions to be discussed at the AGM. Motions should be clear and concise and include a motivation and require a proposer and a seconder.

Closing date

The closing date for nominations and submission of motions is on 31 January 2016 and should be addressed to the secretary at secretary@sarl.org.za or by fax to 0865528487. *de Elize Findt ZS6ECF*

Using Solid-State Transceivers With Older Tube Amplifiers

(some Hints and Kinks on the Heath SB-220/200 that can be useful in your application)

Using The SB-220 Amplifier With Solid-State Transceivers

QST January 1988, p. 45

The Heathkit SB-220 is one of the most popular amplifiers ever sold. It was designed in an era when most amateur equipment was based on vacuum-tube technology. Because of this, special care is needed if the SB-220 is to be used with a solid-state transceiver.

The SB-220 goes into the transmit mode when the hot contact of its rear-panel ANT RLY jack (J1 in Fig. 1A) is shorted to ground, actuating K1, the SSB-220 antenna relay. The open-circuit dc voltage at this jack is 125; the short-circuit current is 25mA. Vacuum-tube-based excitors usually have no trouble switching power at this level. Solid-state rigs are a different story. My ICOM IC-740 transceiver can't switch 125 V at 25 mA because the maximum ratings for this amplifier controlled relay contacts are 24 V/1 A dc.

Other solid-state transceivers likely use relays or open-collector transistors of similar ratings for amplifier control. The switching problem is complicated by the fact that the SB-220 antenna-relay solenoid is not shunted by a spike-suppression diode. The transient voltage developed by a solenoid's collapsing magnetic field can exceed the supply voltage. (If you've never gotten a poke from relay-solenoid back EMF, you know that this voltage is not just theoretical!) With the 24-V rating of the IC-740's control contacts in mind, a direct amplifier-control connection between the SB-220 and the IC-740 seemed to invite trouble.

Fig 1B shows my solution to this problem. With Q1 and Q2 handling the actuation of K1, voltage at J1 is reduced to approximately +12. Short-circuit current through J1 is about 2 mA. Because the SB-220 must be opened to make this modification now's a good time to install an OPERATE/STANDBY switch, S1, to save switching the SB-220's tube filaments on and off.

There's plenty of room under the SB-220 chassis for mounting the switching components; the entire circuit can be assembled on a tie strip and mounted to an available under-chassis screw. I installed my version of the Fig. 1B circuit next to the SB-220's 125-V dc supply, just behind the SSB/CW rocker switch. (Take proper high-voltage safety precautions when you make this modification. Lethal voltages exist in the SB-220.) Dress the wiring for minimal coupling to RF circuits under the chassis and near the antenna relay. As installed in my SB-220, this circuit shows no susceptibility to RFI. — James Herbert, K8SS 2

An Improved Circuit for Interconnecting the SB-200 Amplifier and Solid-State Transceivers

QST May 1989, pp.48-49

I encountered a problem similar to that discussed by James Herbert ("Using the SB-220 Amplifier with Solid-State Transceivers," *QST*, Jan 1988, p. 45, when I sought to drive my Heath SB-200 amplifier with a newly acquired Kenwood TS-940S transceiver. The hot contact of the SB-220's relay-control jack exhibits an open circuit voltage of -130 to ground; the short-circuit current of the SB-200's relay control circuit is 50 mA. The open-circuit voltage could rise to as high as 170 under fault conditions in the SB-200. The Kenwood manual states that the TS-940's control relay is intended for low-current applications; I infer that "low current" also means "low voltage." As a result, I did not want to connect the SB-200's 130-V control line to my TS-940S.

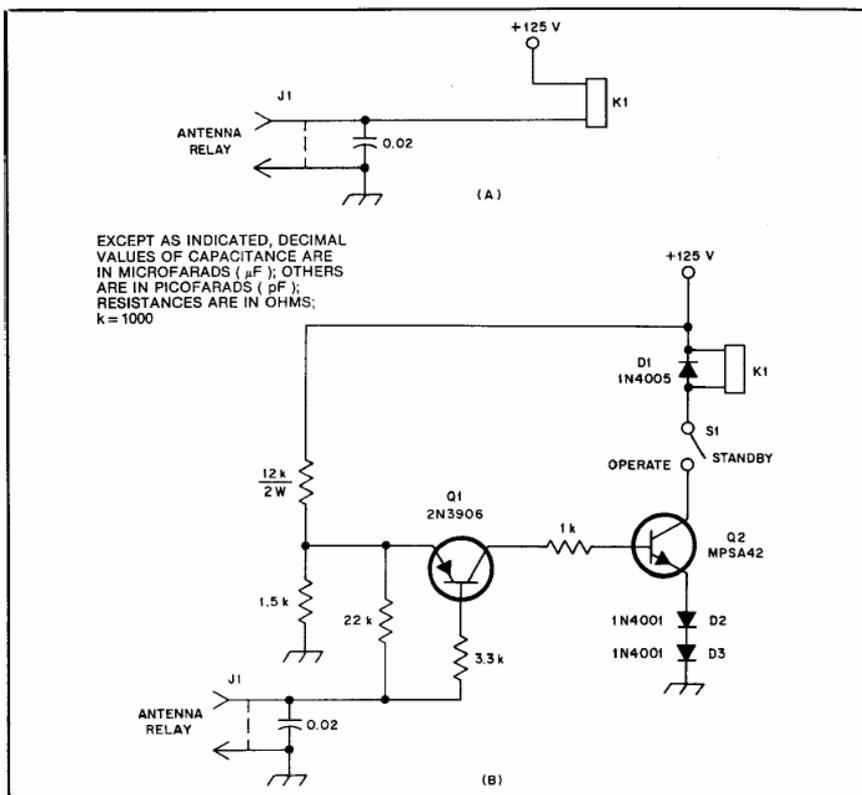


Fig 1—K8SS' SB-220 modification lowers the voltage at the ANT RLY jack, J1, from 125 at A to approximately 12 at B. Short-circuit current through J1 is reduced from 25 mA in the unmodified circuit to 2 mA in the circuit shown at B. J1, K1 and the 0.02- μ F capacitor are SB-220 parts. Resistors are 1/4-W, carbon-film units unless designated otherwise.

D1—1-A, 600-PIV diode.
 D2, D3—1-A, 50-PIV diode.
 Q1—General-purpose transistor.
 Q2—High-voltage switching transistor, $V_{ce0} = 300$. ECG287 also suitable.
 S1—SPST toggle.

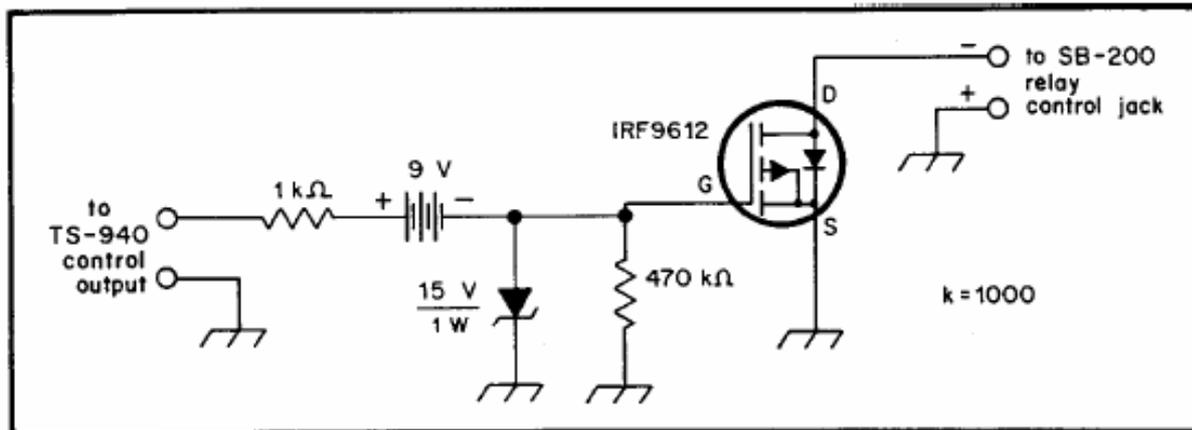


Fig 2—Richard Jaeger's solid-state transceiver-to-amplifier interface uses a power MOSFET instead of a relay for amplifier control. For amplifiers that use a *positive* relay-control voltage, reverse the polarity of the Zener diode and battery, and use an IRF612 N-channel MOSFET instead of the IRF9612.

Instead, and in order to get on the air quickly, I used a relay between the TS-940S and the SB-200. I wasn't satisfied for long: It seemed ridiculous – and rather noisy – to use the transceiver relay to drive another relay that finally switched *another* relay in the SB-200.

To solve this problem, I designed an interface circuit (Fig 2) that uses a high voltage, P-channel MOS power transistor – an IRF9612 – as a switch. The IRF9612 has a source-to-drain breakdown voltage of 200V, can switch up to 1.5 A, exhibits a channel resistance of $4.5 \mu\Omega$ when turned on, comes in a TO-220 plastic package, and costs \$3.50/unit* in small quantities. The IRF9612 also includes an integral drain-to-source protection diode capable of clamping transients that can result from switching inductive loads. The circuit is powered by a 9-V battery, which provides enough voltage to drive the MOSFET in this low-current switching application. The 1-k Ω resistor limits the peak current flowing in the transceiver relay to approximately 9 mA and sets the MOSFET turn-on time to approximately 0.3 μ s (this assumes that the MOSFET's effective input capacitance is 300pF). The 470-k Ω resistor sets the turn-off time constant to 140 μ s and limits the closed circuit current to 20 μ A. The 15-V Zener diode protects the transceiver should the MOSFET develop a gate-to-drain short circuit. (In that unlikely event, the Zener diode will limit the voltage applied to the transceiver to -24 V. If you intend to substitute a diode with a different Zener voltage for this part, remember that the Zener diode's breakdown rating must comfortably exceed the battery voltage [9 V in this application]).

I built the circuit on a piece of perfboard, mounted the board in a small metal box, and used shielded cable for connections between the interface box, amplifier and transceiver. Stray-RF problems have not occurred with this arrangement. Because the interface circuit is self-contained, the SB-200 and TS-940S need not be modified for operation with the interface. – *Richard C. Jaeger, K4IQJ*

More on Interfacing Solid-State Transceivers and the SB-220 Amplifier: A Power-MOSFET Source

QST January 1991, p. 37

My circuit for interfacing the TS-940S with the SB-200 has generated a lot of interest. But many people are having trouble finding the IRF9612 power MOSFET I used. The IRF9612 is an International Rectifier product sold under the trademark HEXFET. The IRF9610, 9620, 9630 and 9632 can all be used in place of the 9612, although they are slightly more expensive. My source is Digi-Key Corp**. – *Richard C. Jaeger, K4IQJ*



Heathkit SB200



Heathkit SB220

HAM PRIDE IS ALIVE AND THRIVING

By Dave Ingram, K4TWJ (SK)

(This introduction was written by Dave before he became a Silent Key.)

Over the years, I have written more than 1,000 articles and dozens of books on many, many aspects of amateur radio, both technical and nontechnical, and your response indicated the most consistently popular topics are CW and keys. Why? Opinions may vary, but the obvious answer is keys (including bugs and paddles) are amateur radio's all-time favourite accessory and a universally recognized symbol of radio communications. Older keys stand as genuine pieces of radio history you can hold in your hand, and modern keys and paddles illustrate the artistic creativity and ingenuity of their designers. Amateur radio may change noticeably in the future, but our interest in keys and their historically significant background will surely live on for many years hence.

Operating CW with a just-right-for-you key, bug, or paddle is also enjoyable, as well as a unique skill and a silent means of non-verbal communication. Over the years, prisoners of war, hostages, and severely handicapped individuals have communicated by pipe-tapped, eye-blinked Morse code and more. Today many radio amateurs carry Medic Alert cards showing the Morse code and stating if injured but able to move some body part, they can "talk" via Morse code. In addition, the use of CW/Morse code and internationally recognized "Q" symbols (QTH, QSL, QRN, etc.) produce a universal language, so you can communicate with other radio amateurs of all languages worldwide.

You, the amateur radio operator, play a very important role in helping ensure our proud history, legacies, and traditions—the traits that place us 10 dB above the crowd and fill the airwaves, circle the Earth, and live on throughout the annals of time. Make no mistake, friends. Passing on these pictures and information to future generations of amateurs—both today and in future years, just as I am passing them on to you now—is one of the best contributions you can make to our grand amateur radio world. Keep the ball rolling!

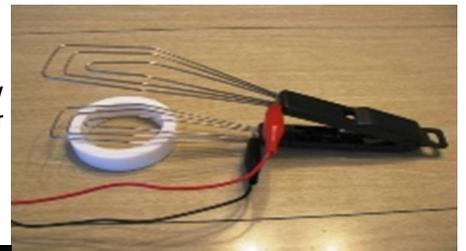
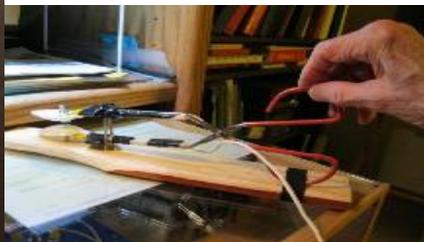
KEYS IV...As you probably know, books of a considerable size are too expensive to print freely in large quantities and ship over long distances. We are also progressing toward a "paperless society," so producing this book on CD (the original) and then making the book available via the Internet is quite necessary. There's more! I have been compiling another book containing views and details of even more exotic keys and paddles, plus select reprints of my celebrated series of "HAM PRIDE" articles that have been translated and published worldwide. This combination is guaranteed to make everyone proud to be a legally tested and licensed radio amateur. Surely I speak for everyone in thanking the companies, foundations, organizations, and publications that support this endeavour. They are simply the best!

73, and may the force of good signals always be with you!
Dave Ingram, K4TWJ

(Anyone wanting a copy of Dave Ingrams book can contact the Ed (Andy))



Some examples of Home Brew keys from the SKCC December Sprint Theme.



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**Antique Wireless Association
of Southern Africa**

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website: www.awasa.org.za

Notices:**Net Times and Frequencies:**

Saturday 05:00—AM Net—3615

Saturday 07:15—Western Cape SSB Net— 7140 (Alternate 3630)

Saturday 07:30—KZN SSB Net—7150

Saturday 08:30— National SSB Net— 7140; relayed on 14135 beaming to WC and on Echolink (ZS0AWA-L)

Saturday 14:00— CW Net—7020

Wednesday 19:00— AM Net—3615, band conditions permitting.
